

WHAT IS CLAIMED IS:

1. A racing game machine, comprising:
- a racing track;
  - a traveling field, on which platen dots are provided, extending below the racing track,;
  - a plurality of self-propelled members provided on the traveling field, each self-propelled member including:
    - a first yoke, which constitutes a first linear motor together with the platen dots for propelling the self-propelled member in a first direction on the traveling field;
    - a second yoke, which constitutes a second linear motor together with the platen dots for propelling the self-propelled member in a second direction which is perpendicular to the first direction; and
    - a first magnet provided in an upper portion of the self-propelled member; and
  - a plurality of miniature members, which are provided on the racing track to be raced with each other while being associated with the respective self-propelled members, each miniature member including:
    - front wheels and rear wheels provided on a bottom face thereof for supporting the miniature member on the racing track, the front wheels being provided as caster wheels; and
    - a second magnet provided in a front side of the caster wheels while being magnetically coupled with the first magnet.

1 2. The game machine as set forth in claim 1, wherein ball bearings are  
2 provided on the bottom face of the self-propelled member to assist the  
3 propelling on the traveling field.

1 3. The game machine as set forth in claim 1, wherein each of the first  
2 yoke and the second yoke is formed with three legs provided with coils, to  
3 constitute three-phase linear motors.

1 4. The game machine as set forth in claim 3, wherein a lower end  
2 portion of each leg is split into plural projections each having an identical width  
3 with a width of each of the platen dots.

1 5. The game machine as set forth in claim 2, wherein the ball bearings  
2 are composed of at least three independent ball bearings.

1 6. The game machine as set forth in claim 2, wherein the ball bearings  
2 are supported within an annular retainer formed on the bottom face of the  
3 self-propelled member to constitute a thrust bearing.

1 7. The game machine as set forth in claim 1, wherein nozzles from  
2 which air is blown toward the bottom face of the self-propelled member are  
3 formed on the traveling field to form an air bearing layer between the bottom  
4 face and the traveling field to support the self-propelled member thereon.

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1 8. The game machine as set forth in claim 7, wherein a skirt member is  
2 formed on a peripheral portion of the bottom face of the self-propelled member.

1 9. The game machine as set forth in claim 1, wherein the self-propelled  
2 member includes a compressor for blowing compressed air toward the  
3 traveling field through nozzles formed on the bottom side thereof, to form an  
4 air bearing layer between the bottom face and the traveling field to support the  
5 self-propelled member thereon.

1 10. The game machine as set forth in claim 1, wherein the second  
2 magnet is pivotable about a pivot center provided on the bottom face of the  
3 miniature member at a front side of the front wheels.

1 11. The game machine as set forth in claim 1, wherein the miniature  
2 member includes a ball bearing provided on the bottom face thereof in the  
3 vicinity of the second magnet, for supporting the miniature member on the  
4 racing track.

1 12. The game machine as set forth in claim 1, wherein the second  
2 magnet is rotatable about a rotation center provided on the bottom face of the  
3 miniature member at a front side of the front wheels.

1 13. The gaming machine as set forth in claim 2, wherein:  
2 the ball bearings are made of metal, and  
3 a conductive layer is formed on the traveling field for supplying power

4 to the linear motors of the self-propelled member via the ball bearings.

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